An Inventory of Biological Samples taken in the British Columbia Groundfish Fishery during 1984

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ABSTRACT

Hamer B. L., N. L. Venables, F. R. Crabbe, and J. B. Lucas. 1985. An inventory of biological samples taken in the British Columbia groundfish fishery during 1984. Can. Data Rep. Fish. Aquat. Sci. 555: 15 p.

An inventory of biological samples taken in the British Columbia groundfish fishery during 1984 is presented. Samples are separated by species, area, time, depth range, sex, and type of sample. A total of 107 samples of 13 species were collected. Sampling by species generally reflected abundance in landings except where special research considerations applied.

Key words: Groundfish fishery, biological sampling

RESUME

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On présente un répertoire des échantillons biologiques qui ont été prélevés en 1984 dans le cadre de la pêche de poissons de fond en Colombie-Britannique. Les échantillons sont séparés selon l'espèce, le secteur, le moment de capture, l'échelle de profondeur, le sexe et le genre d'échantillon. On a recueilli au total 107 spécimens de 13 espèces différentes. L'échantillonnage par espèce reflétait en général l'importance des débarquements sauf dans les cas où on réalisait des recherches particulières.

Mots-clés: pêche de poissons de fond, échantillonnage biologique

INTRODUCTION

The collection of biological samples from the groundfish fishery off the west coast of Canada is an important function of the Pacific Biological Station's Groundfish Program. Biological sampling is fundamental to our understanding of the dynamics of groundfish stocks, especially considering the extended longevity of many of these species (e.g. rockfish, sablefish, flatfish and dogfish).

Sampling is conducted primarily at the ports of Vancouver, Steveston and Prince Rupert, and at sea aboard commercial fishing vessels. Annual reports of these activities have been published in this format since 1970.

During 1984, sampling generally reflected changes or trends in the groundfish fishery. The total number of samples collected was markedly lower (29%) than what was attained in 1983. This could be attributed to a reduced staff at times on the Vancouver waterfront. More importantly, there were fewer opportunities to sample throughout the year. Specifically, landings of flatfish to the ports of Vancouver and Steveston decreased, there were fewer landings of Pacific cod and walleye pollock, and the major portion of the rockfish fishery was concentrated in the early portion of the year. Nearly all the catch of Pacific hake (excluding catches from the international joint venture fishery) continued to be landed by Canadian trawlers directly to United States ports as was the case in 1983. The general situation precluded much potential sampling.

Fishing effort by the sablefish fleet (trap gear in particular) was again intensive this year, resulting in a shorter fishery. The bulk of these landings continue to consist mainly of dressed-frozen product. Sablefish samples were collected by Pacific Biological Station representatives at sea aboard commercial fishing vessels.

The international joint venture hake fishery in major Area 3C continued on an even larger scale than the previous year. More of the larger vessels in the Vancouver-Steveston and Prince Rupert trawl fleets participated in this fishery from July through September. Again, as in previous years, this resulted in fewer trawl landings from a number of other major areas during the summer and early fall periods.

During 1984, 107 biological samples were collected from the British Columbia commercial groundfish landings at various ports. Of the 28,055 fish sampled, nearly all were processed for length measurements and sex data. Of these, 9,730 were processed for age determination through the collection of otoliths and fin sections or combinations of these structures. Maturity state readings were collected from most samples, while parabranchial-lesion incidence was noted in the majority of Pacific cod and walleye pollock samples. Observations of stomach contents were indicated in most samples collected in 1984. Fourteen of the Pacific Ocean perch samples were for length frequency data only. These samples were collected to identify catch locality in lieu of logbook information. The following figures indicate a percentage breakdown by species of the number of samples collected at ports of landing; Pacific ocean perch--36%; Pacific cod--34%; flatfish--13%; walleye

pollock--6%; other rockfish--5%; lingcod--3%; spiny dogfish--3%; and sablefish--1%. A summary table of samples collected from groundfish landings by species and International (major) Area (Fig. 1) is given in Table 1.

ACKNOWLEDGMENTS

The collection of statistics and biological samples from the commercial fishery remains a co-operative effort among port samplers, fishermen, and processors. The Pacific Biological Station port sampling staff would like to express their sincere thanks to fishermen and processors for their time and assistance during 1984.

Table 1. Number of samples collected from British Columbia groundfish landings in 1984, by species and International Area.

Species	Area								
	3C	3D	4B	5A	5B	5C	5D	5E	Total
Flatfish									
Dover sole	-	-	-	-	-	-	3	2	5
English sole	-	-	-	-	-	1[a]	5	-	6
Rock sole	-	-	-	1	-	1[a]	1	-	3
Rockfish									
Canary rockfish	-	2	-	-	-	-	-	-	2
Pacific ocean perch	-	3	-	1[b]	11[c]	8	-	16[d]	39
Silvergray rockfish	-	-	-	-	-	1	-	-	1
Yellowmouth rockfish	-	2	-	-	-	-	-	-	2
Roundfish									
Lingcod	3	-	-	-	-	-	-	-	3
Pacific cod	4	-	2	-	-	6[e]	24	-	36
Walleye pollock	-	-	1	-	-	1	4	-	6
Sablefish	1	-	-	-	-	-	-	-	1
Selachii									
Spiny dogfish	1	-	1	1	-	-	-	-	3
Total	9	7	4	3	11	18	37	18	107

[a]This sample was taken from two areas (5C + 5D).

[b]One sample was taken from three areas (5A, 5B, and 5C).

[c]Three samples were taken from two areas (5B and 5C).

[d]Three samples were taken from two areas (5B and 5E).

[e]Three samples were taken from two areas (5C and 5D).

Table 2. Dover sole (Microstomus pacificus) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5D	June	75- 90	46	255	301	-	255	255	PRF12144-12398
	Aug.	30- 86	114	187	301[a]	-	187	187	PRF12875-13061
		50- 82	76	224	300[ab]	-	224	224	PRF13310-13533
5E	Jan.	260-340	237	67	304[b]	-	67	67	PRF11234-11300
	Mar.	250	174	129	303	-	129	129	PRF11501-11629
Total fish sampled					1509			862	

[a]Unknown fishing ground.

[b]No maturity data collected.

Table 3. English sole (Parophrys vetulus) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5D	Mar.	17-66	100	200	300[a]	-	200	200	PRF11301-11500
	Apr.	33-60	76	224	300[b]	-	224	224	PRF11630-11853
	June	30-55	102	206	308[b]	-	206	206	PRF12399-12604
	July	46-55	30	270	300[b]	-	270	270	PRF12605-12874
	Aug.	41-80	52	248	300[ab]	-	248	248	PRF13062-13309
5C,5D	May	20-63	74	229	303[ab]	-	-	-	-
Total fish sampled					1811			1148	

[a]Unknown fishing ground.

[b]No maturity data taken.

Table 4. Rock sole (Lepidopsetta bilineata) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5A	June	38- 44	23	277	300	-	277	277	VF12101-12377
5C,5D	Oct.	17- 52	84	227	311[ab]	-	-	-	-
5D	May	14- 18	10	290	300[b]	-	290	290	PRF11854-12143
Total fish sampled					911			567	

[a]Unknown fishing ground.

[b]No maturity data collected.

Table 5. Canary rockfish (Sebastes pinniger) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3D	May	82- 84	178	135	313	116	84	200	VNRF15401-15600
		74- 86	70	30	100[a]	70	30	100	BMLRF19001-19100
Total fish sampled					413			300	

[a]Sample taken from commercial catches at sea.

Table 6. Pacific ocean perch (Sebastes alutus) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3D	May	95-140	229	74	303	147	53	200	VNRF15601-15800
	Nov.	110-124	97	210	307	67	133	200	VNRF17501-17700
		115-124	91	203	294	56	144	200	VNRF17701-17900
5B	Mar.	-[a]	144	163	307	-	-	-	-
		-[a]	169	104	273	122	78	200	VNRF14601-14800
	Apr.	-[a]	40	313	353	14	186	200	VNRF14801-15000
	Apr.	135-195	223	77	300	148	52	200	PRRF16701-16900
		130-170	157	150	307	58	42	100	PRRF16901-17000
5B	May	-[a]	165	39	204[b]	-	-	-	-
		-[a]	33	179	212	-	-	-	-
		-[a]	102	130	232	-	-	-	-
	Oct.	160-240	155	147	302	100	100	200	VNRF16901-17100
	June	107-140	183	124	307	111	89	200	VNRF16201-16400
		122-141	213	149	362	116	84	200	VRNF16401-16600
5A,5B,	Feb.	150-180	87	95	182[c]	-	-	-	-
5B,5C	Feb.	-[a]	163	182	345[c]	-	-	-	-
	May	130-178	38	10	48[d]	38	10	48	VNRF15201-15248
		130-178	223	79	302	156	44	200	VNRF15001-15200

Table 6 (cont'd)

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5C	June	-[a]	109	230	339	68	132	200	VNRF16601-16800
	Oct.	84-134	195	105	300	127	73	200	PRRF18001-18200
		110-130	148	156	304	97	103	200	VNRF17101-17300
		124-148	168	169	337[b]	-	-	-	-
		110-140	168	163	331[b]	-	-	-	-
5E	Feb.	122-185	199	101	300	131	69	200	PRRF16301-16500
	Mar.	155-175	59	241	300	40	160	200	PRRF16501-16700
	Apr.	150-160	67	220	287	-	-	-	-
	May	126-306	145	155	300[d]	99	101	200	PRRF17001-17200
		138-170	142	158	300	95	105	200	PRRF17201-17400
		138-205	137	176	313[b]	-	-	-	-
	Nov.	120-176	148	166	314	95	105	200	PRRF18201-18400
		130-250	133	151	284[b]	-	-	-	-
	June	-[a]	129	175	304	86	114	200	VNRF15801-16000
		-[a]	155	149	304	104	96	200	VNRF16001-16200
	June	150-180	141	159	300	97	103	200	PRRF17401-17600
	Oct.	135-160	102	200	302	47	153	200	VNRF15301-15400 and VNRF16801-16900
	Oct.	130-150	123	177	300	87	113	200	PRRF17601-17800

Table 6 (cont'd).

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5B,5E	June	-[a]	120	188	308[c]	-	-	-	-
	Mar.	-[a]	81	205	286	-	-	-	-
	Feb.	100-220	169	134	303	-	-	-	-
Total fish sampled					11,356			4,748	

[a]No depth available.

[b]No maturity data collected.

[c]Unknown fishing ground.

[d]Gillrakers taken from this sample.

Table 7. Silvergray rockfish (Sebastes brevispinis) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5C	Oct.	57- 82	122	178	300	82	118	200	PRRF17801-18000
Total fish sampled					300			200	

Table 8. Yellowmouth rockfish (Sebastes reedi) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3D	Nov.	110-124	174	106	280	122	78	200	VNRF17301-17500
	Nov.	115-124	145	85	230[a]	-	-	-	-
Total fish sampled					510			200	

[a]No maturity data collected.

Table 9. Lingcod (Ophiodon elongatus) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (fin ray) M	F	T	Serial number
3C	July	-[a]	85	163	248	85	163	248	17564-17811
	Aug.	35-44	102	138	240	102	138	240	18029-18268
		33-40	101	116	217	101	116	217	17812-18028
Total fish sampled					705			705	

[a]No depth available

Table 10. Pacific cod (Gadus macrocephalus) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled						
			Length-maturity-cyst				Age(fin)		
			M	F	U	T	M	F	T
3C	Feb.	44-49	77	114	-	191	-	-	-
		25-28	145	68	-	213	-	-	-
		22-34	148	52	-	200	148	52	200
	May	34-50	90	110	-	200	90	110	200
4B	Oct.	44-56	91	109	-	200	-	-	-
		44-56	99	100	1	200	-	-	-
5C	Mar.	58-60	84	125	-	209	-	-	-
		58-60	88	171	-	259	-	-	-
	Apr.	42-62	122	125	-	247[a]	-	-	-
5D	Jan.	55-60	93	111	-	204	-	-	-
	Mar.	56-62	112	135	-	247	-	-	-
		48-50	9	25	-	34[a]	-	-	-
		48-54	115	119	-	234	-	-	-
		51-61	73	88	-	161	-	-	-
	Apr.	52-64	110	116	-	226[a]	-	-	-
		59-64	126	132	-	258	-	-	-
		50-65	100	173	-	273[a]	-	-	-
	May	62-64	175	128	-	303[a]	-	-	-
	Nov.	45-78	159	119	-	278[a]	-	-	-
		46-72	111	119	-	230[a]	-	-	-
		58-82	124	148	-	272	-	-	-
	Dec.	45-62	147	126	-	273	-	-	-
		58-68	104	102	-	206	-	-	-

Table 10 (cont'd)

Area	Month	Depth (fm)	Number sampled						
			Length-maturity-cyst				Age(fin)		
			M	F	U	T	M	F	T
5D	Feb.	31-60	115	167	-	282	-	-	-
	May	36-57	92	101	-	193[a]	-	-	-
	June	42-54	104	101	-	205[a]	-	-	-
	July	28-70	111	90	-	201[a]	-	-	-
		36-71	105	94	-	199[a]	-	-	-
	June	50-70	119	113	-	232[a]	-	-	-
	Aug.	50-92	120	137	-	257[a]	-	-	-
	May	42-52	108	125	-	233[a]	-	-	-
	July	40-72	134	161	-	295[a]	-	-	-
	July	48-80	113	137	-	250[a]	-	-	-
	Aug.	32-90	96	104	-	200[a]	-	-	-
5C,5D	Feb.	50-60	92	186	-	278	-	-	-
	Aug.	35-62	123	115	-	238[a]	-	-	-
Total fish sampled						8181			400

[a]No maturity data collected.

Table 11. Sablefish (Anoplopoma fimbria) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled		
			Length-maturity		
			M	F	T
3C	June	165-170	109	93	202
Total fish sampled					202

Table 12. Walleye pollock (Theragra chalcogramma) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled						Serial number
			Length-cyst-maturity			Age (fin ray)			
			M	F	T	M	F	T	
4B	Dec.	40-60	130	70	200	68	32	100	P63601-63700
5C	July	0-20	65	135	200[a]	65	135	200[b]	P55000-55199
5D	Jan.	51-75	83	125	208[c]	44	56	100	P54700-54799
	Jan.	45-54	84	131	215[c]	45	55	100	P54800-54899
	Feb.	50-96	87	121	208	45	55	100	P54900-54999
		45-90	109	128	237[c]	-	-	-	-
Total fish sampled					1268			600	

[a]Special sample-caught by seine.

[b]Double otoliths and fins.

[c]No maturity data collected.

Table 13. Spiny dogfish (Squalus acanthias) samples taken during 1984.

Area	Month	Depth (fm)	Number sampled		
			Length		
			M	F	T
4B	Dec.	-[a]	37	342	379[b]
3C	Mar.	34	3	229	232
5A	Jan.	75-95	10	268	278
Total fish sampled					889

[a]No depth available.

[b]Fishing ground unknown.

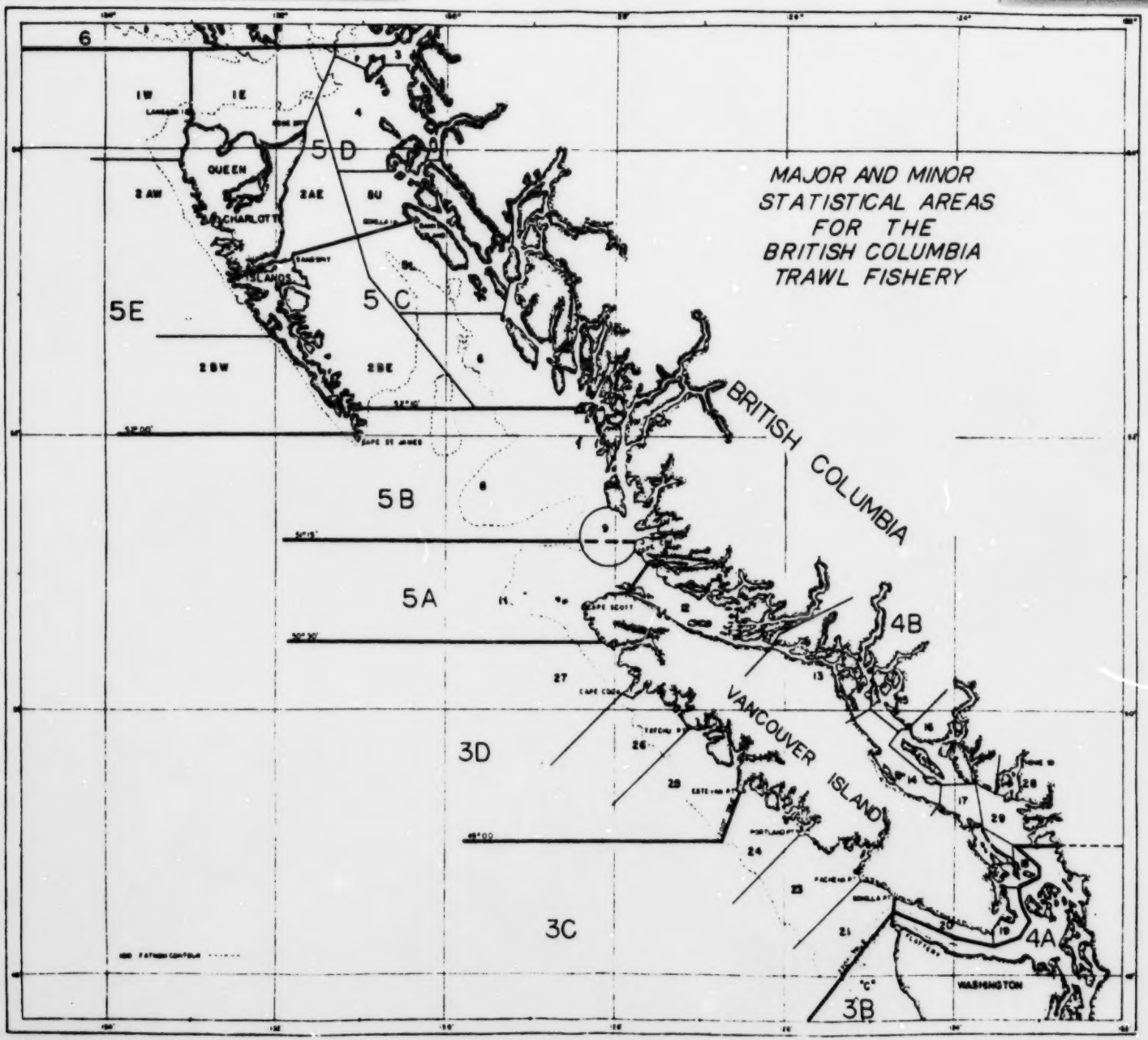
MAJOR AND MINOR
STATISTICAL AREAS
FOR THE
BRITISH COLUMBIA
TRAWL FISHERY
BRITISH COLUMBIA
VANCOUVER ISLAND
WASHINGTON
6
1W
1E
5D
2AW
2AE
5E
5C
2BW
2BE
5B
5A
4B
3D
3C
4A
3B

Fig. 1.